plexes may be made by counting residual unagglutinated latex particles on a Coulter counter (Model ZB). IgG (0.1 μg) which has been heat-aggregated gives a positive reaction using the anti-IgG system. The inhibition was above the upper limit of normal in 14 of the 24 patients with SLE nephritis, all of whom were on various immunosuppressive treatments and had varied clinical activity. The complexes identified contained IgG and Clq, and a good correlation was obtained between the two tests ($r = 0.84$, $P < 0.001$). Two sera were fractionated on a calibrated Sepharose CL-6B column, and IgG complexes were identified in the 1 to 1.5×10^6 mol wt range. No correlation was obtained between level of complexes and serum DNA binding, C_3, or Clq levels. In one patient followed sequentially, however, the level of serum circulating soluble immune complexes proved to be the earliest indication of reexacerbation.

Prevalence of low-molecular weight proteinuria in South Wales. *A. E. Lison, A. W. Asscher, M. Davies, M. Hopkins, R. Fifield, and P. C. Elwood. K. R. U. F. Institute of Renal Disease, Welsh National School of Medicine, Royal Infirmary, Cardiff, and M. R. C. Epidemiology Unit, South Wales.* Low mol wt (LMW) proteinuria is considered to be a sensitive indicator of tubular damage and an early indicator of interstitial kidney disease. The prevalence of LMW proteinuria has not been studied in unselected populations. We report here the results of such a study on 205 subjects, aged 18 to 64 yr, taken from the electoral register of both an industrial and a rural area of South Wales. The presence of LMW proteins in early morning urine specimens was studied by electrophoresis in sodium-dodecyl-sulphate (SDS) polyacrylamide gels. The urinary concentration of β_2-microglobulin was also measured by radioimmunoassay (Phadebas β_2-micro test). A standard questionnaire was administered to all subjects. In the industrial area, LMW proteinuria was found in 75% of the subjects. In 19% a four-band pattern of LMW proteins was found similar to that observed in each of 21 patients with end-stage kidney failure. In the rural community LMW proteins were found in 71% and the four-band pattern in 21%. LMW proteinuria was unrelated to sex, age, symptoms of UTI or consumption of analgesics. Two subjects in the survey showed β_2-microglobulin levels outside the normal range (4 to 370 μg/liter). Screening for LMW proteinuria by the present methods appears to be too sensitive for the early detection of clinically important kidney disease. Our results suggest that all data published on the prevalance of LMW proteinuria in diseased states need to be reinterpreted in the light of the present findings in an unselected population.

Glomerular fibrin clearance mechanisms: I. Fibrinolysis. *A. Sanchez-Ibarrola and P. Naish. North Staffs Research Laboratory, North Staffs Medical Centre, Stoke-on-Trent, England.* Experiments have been undertaken to examine in detail the results of thromboplastin infusion in the rat as part of a project to study glomerular fibrin clearance mechanisms. Marked intraglomerular capillary thrombosis was observed at the end of thromboplastin infusion. At the same time, there was a rise in glomerular plasminogen activator activity (PAA) (as measured by the modified Todd technique) which was proportional to the amount of thromboplastin infused. Glomerular PAA rose to a maximum 30 min after the end of infusion and had returned to normal 24 hr later. Almost complete clearance of fibrin from glomeruli had occurred within 12 hr. Thrombocytopenia, also proportional to the thromboplastin dose, was observed. Evidence is presented which indicates that complement activation did not occur. The results show that fibrinolysis is an important mechanism in glomerular fibrin clearance and that the Todd technique is a valid method for its measurement.

Cyroglobulins and the complement system in Henoch-Schönlein nephritis. *D. Gwyn Williams, M. Garcia-Fuentes, and C. Chantler. Departments of Medicine and Paediatrics, Guy's Hospital, London Bridge, England.* Henoch-Schönlein purpura (HSP) and the glomerulonephritis which frequently accompanies it are considered to be immune complex diseases, although there is no direct evidence that this is so. The presence of cryoglobulins (which often behave as immune complexes) and abnormalities of the complement system were studied in three groups of patients: *1)* patients with acute HSP, defined in this study as patients suffering at the time with HSP for not more than 30 days; *2)* patients with a previous episode of HSP and with current glomerular disease; *3)* patients with a previous episode of HSP but with no current renal abnormalities. Significant cryoglobulinemia, previously unreported, was found in groups 1 and 2, and analysis of the cryoglobulins showed a high incidence of IgA. The presence of cryoglobulins was not related to the presence or absence of renal abnormalities in the acute group, but cryoglobulinemia was associated with renal abnormalities at the time of the study in patients who previously had had HSP. Only a small number of patients had hypocomplementemia, and the ability of isolated cryoglobulins to activate complement was likewise demonstrated in a minority of cases.

Prognosis of Henoch-Schönlein nephritis. *M. H. Winterborn, R. Counahan, H. Swetschin, S. R. Meadow, J. S. Cameron, C. Chantler, D. Turner, and R. H. R. White. The Children's Hospital, Ladywood Middleway, Birmingham, and Guy's Hospital, London Bridge, England.* Clinical and renal biopsy data from 88 children with Henoch-Schönlein nephritis (HSN) were reported in 1972. After an interval of five years, 85 of the children have been reexamined. Two years after the onset of nephritis, 40 patients (group 1, 45%) were normal; 32 patients (group 2, 36%) had hematuria or moderate proteinuria (< 20 mg/hr/m²); 12 patients (group 3, 14%) had heavy proteinuria with or without hypertension, but with a glomerular filtration rate (GFR) > 60 ml/min/1.73 m²; four patients (group 4, 5%) had renal insufficiency ($N = 1$) or had died ($N = 3$). In early 1976, 5 to 21 years after the onset of nephritis, three patients (8%) in group 1 and three patients (10%) in group 2 had developed hypertension or heavy proteinuria without renal insufficiency. Two patients (6%) in group 2 and six patients (50%) in group 3 had developed renal insufficiency. The mortality had risen to four, while a further three patients were on long-term hemodialysis. Improvement in renal function had occurred in none of group 4, four of group 3, and 21 of group 2. Renal biopsy and the presenting renal disease were of limited value in assessing the prognosis for an individual patient. Contrary to our previous belief, renal function may change significantly more than two years after the onset of HSN in children. Follow-up should, therefore, be continued for at least ten years.

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Direct renal actions of isoprenaline and propranolol. *J. L. Ader, J. M. Suc, T. Tran Van. Groupe I.N.S.E.R.M. U 133, CHU Rangueil, Toulouse, et Laboratoire de Physiologie de la Faculté de Médecine, Toulouse, France.* Effects of isoprenaline and propranolol infused into renal arteries were studied on ten pairs of isolated dog kidneys perfused at a constant high level pressure (160 mm Hg). Thirty minutes after the beginning of blood perfusion, one kidney received a 2 μg/min isoprenaline infusion (group A kidneys). The other kidney received the same isoprenaline infusion plus, after the 60th min, a 40 μg/min propranolol infusion (group B kidneys).

Isoprenaline (A kidneys) induced an increase in renal blood flow, relative change of intrarenal blood flow distribution (estimated by ^{133}Xenon washout technique) with an increase of fractional distribution to the medulla and a decrease of fractional distribution to the cortex, and decreases in glomerular filtration rate and filtration fraction, of water and sodium tubular reabsorption, and of para-aminohippurate extraction ratio. Prop.anolol adjunction to group B kidneys decreased total renal blood flow and prevented changes of fractional blood flow distribution of glomerular filtration rate and fraction, and of tubular reabsorption and secretion. These results sugest *1)* the responsibility of renin secretion (in group A kidneys, the venous plasma renin activity was significantly higher than in group B kidneys) in hemodynamic and functional differences between the two groups of kidneys, and *2)* the role of direct renal action in the general antihypertensive effect of propranolol.

100 modified bovine carotid implants for hemodialysis: Clinical and hemodynamic results. *P. Bourquelot, B. Levy, F. Perrey, and J. Crosnier. Hôpital Saint-Joseph, Paris, France.* 100 bovine carotid arteriovenous fistulas were created in 92 hemodialysis patients during an 18-month period (May, 1975, to November, 1976). All implantations were made in the arm. Overall success rate of the 100 grafts was 85%. Graft thrombosis required one or several repairs in 19 cases, and infections necessitated removal of 7 grafts. Blood flow rate through the fistula was measured by Doppler pulsed ultrasonic velocimetry. Although no cases of cardiac complication appeared during the observation period, the high mean rate of blood flow (1.1 liter/min) suggests the advisability of using vessels of smaller caliber for creating bovine carotid fistulas in the future.

Interest and limits of indomethacin in the treatment of Bartter's syndrome. *Ph. Dequiedt, Ph. Vanhille, B. Raviart, E. Lepoutre, G. Lelievre, and A. Tacquet. Service de Médecine Générale et Néphrologie A, Hôpital Calmette, Lille, France.* The effectiveness of indomethacin in one case of Bartter's syndrome was evaluated. The modifications of plasma electrolytes, hydroelectrolytic body compartments, renin-angiotensin-aldosterone system, and urinary excretion of prostaglandins show that this substance only unspecifically corrects the biologic abnormalities of the syndrome through an excessive sodium inflation.

Biochemic study of serum IgA of three patients with mesangial IgA deposits associated glomerulonephritis (Berger's disease). *P. T. Desgeorges, J. P. Despont, E. Dechelette, P. Vialtel, and D. Cordonnier. Division d'Immunologie Clinique, Département de Médecine, Hôpital Cantonal de Genève, Genève, Suisse, and Service de Néphrologie, Laboratoire de Biochimie C, Centre Hospitalier Universitaire de Grenoble, La Tronche, France.* The serum of three patients with IgA mesangial deposits were studied and compared with a pool of normal human serum (NHS) and one IgA myeloma serum (MS). After extraction and purification of the IgA, the following results were obtained: *1)* the ratio polymer/monomer is higher than in NHS but lower than in MS, *2)* these polymers do not contain J piece, *3)* the mol wt of heavy and light chains are normal, *4)* sialic acid component of glycoproteins fixed on heavy chains is increased, *5)* these IgA molecules do not contain secretory piece, and *6)* these IgA have no affinity for normal human kidney sections.

Experimental study comparing kidney preservation by surface refrigeration and by hypothermic pulsatile infusion. *A. Gross, J. Robert, J. L'Hermite, A. Duprez, P. Colombel, and J. M. Hallade. Laboratoire de Néphrologie expérimentale, Faculté B de Médecine Nancy, France.* Autotransplantations were performed in dogs, using in each animal a different preservation method for each kidney consecutively for comparison. Kidney preservation was estimated by histology, Xenon flow measurements of intrarenal vascular zones, and by radioisotopic renogram. Flow measurements and pathologic changes corresponded: where flow was reduced in the cortex, we always found tubulocortical necrosis. Results of surface refrigeration according to Collins, and those of plasma pulsatile infusion according to Belzer, were equivalent, but infusion with albumine according to Claes gave much better results.

Urinary excretion pattern of a pluridisperse gelatin solution. *M. Laurent and P. P. Lambert. Queen Elisabeth Medical Foundation and Laboratory for Experimental Medicine, Free University Brussels, Brugmann Hospital, Brussels, Belgium.* A pluridisperse protidic solution derived from gelatin (Haemacel®) was separated on Sephadex G200 into two fractions (Einstein Stokes radii, a_s: 35 and 50 A°) which were iodinated and mixed (2:1 ratio). ^{125}I labelled Haemacel (200 μCi) was infused i.v. in dogs anesthetized with pentobarbital (Nembutal®). Classical clearance experiments were performed. The sieving coefficients (Φ = U/P of the fractions/U/P inulin) for a_s values between 19 and 37 A° were derived by chromatography of plasma and urine samples. Mean maximum Φ (seven experiments) reached 0.183 ± 0.036 SEM for an a_s of 19 A°, whereas the mean sieving coefficient of PVP equals 0.95 for the same a_s value. Φ Haemacel decreased with increasing a_s. The difference probably results from two factors: *1)* increased restriction at the glomerular barrier depending on the electrical charge of the protidic molecules; *2)* tubular reabsorption. To investigate the respective role of these factors, the measurements were repeated after loading with a large amount of unlabelled Haemacel molecules in order to decrease labelled molecule tubular uptake by competition. Φ maximum increased from 0.183 ± 0.036 to 0.363 ± 0.034 (seven experiments). Φ maximum never approached unity. Thus, electric charge also constitutes a factor of restriction in glomerular filtration. The results may be compared with those obtained using dextran-sulfate in renal sieving studies.

Serum antibodies (AB) before and after immunization in hemodialyzed children. *A. Margolis, C. Kleinknecht, C. Bonissol, M. Gaiffe, M. Broyer. Hôpital des Enfants-Malades, Paris, France.* Serum AB level against measles, poliomyelitis, pertussis, tetanus, and diphtheria have been determined in hemodialyzed children. *Before immunization. 1)* Seventeen of the 26 youngest children (less than ten years old) and 4 of the 23 older children had protective measle AB levels. *2)* Thirty-two out of 57 had no detectable AB against the three types of poliomyelitic virus. *3)* Twenty out of 30 had undetectable antipertussis agglutinins. *4)* Forty-four out of 46 patients had serum antitetanic AB above protective levels (0.01 ml/min) as measured by the neutralization of a lethal dose of toxoid on mice: 21 children had never received anatoxin, and yet 13 of them had AB levels of 0.1 and 0.15 μ/ml. *5)* Twenty-three out of 24 had undetectable antidiphteria AB, whereas the Schick test was negative in all. *After immunization.* A normal increase in pertussis, diphtheria, and tetanus AB titers was obtained. Life-attenuated measles vaccine led to seroconversion in only 7 out of 15 patients. Following poliomyelitis vaccine, the seroconversion index was 45 in the 21 patients vaccinated with life virus, and 73 in the 10 patients vaccinated with absorbed killed vaccine (values in normal infants were 83 and 64). *Conclusion.* The low percentage of hemodialyzed children with protective AB against poliomyelitis, pertussis, and diphtheria may be explained by the absence of prior immunization. Three other abnormal findings were possibly due to uremia: *1)* the negative Schick test indicative of suppressed nonspecific skin reactivity, *2)* elevated antitetanus AB levels, suggesting that the uremic serum behaves like an inhibitor of the tetanic toxoid in mice. *3)* decreased response to live vaccines, contrasting with a normal response to killed vaccines and anatoxins.

Serum middle molecules in two different strategies (PAN-open and closed) of hemodialysis. *S. Ringoir, R. Desmet, I. Becaus. Nephrological Division, Department of Medicine, University of Ghent, DePintelaan, Ghent, Belgium.* An anephric patient of 62.5 kg and 1.67 m^2 body surface was dialyzed three times for four hours per week. Seven dialyses were made with a polyacrylonitril membrane (PAN) (RP6) in open system, and 8 with PAN (RP6) in closed system. Serum was analyzed before and after hemodialysis by column chromatography, Sephadex G15, phosphate buffer of pH 7.0,

eluent flow of 4.65 ml/hr and 206 nm. The results are represented in the table; each figure is obtained by dividing the surface area (cm^2) of predialysis by the surface area (cm^2) of postdialysis. Parentheses denote standard deviation.

DSR	Peak surface, *pre/post* 3–4–5	6	9	14	Creat. *pre/post*	Tot. prot. *pre/post*
RP6 open ($N = 7$)	1.90 (1.20)	1.74 (0.47)	2.64 (1.86)	2.09 (0.80)	1.67 (0.21)	1.00 (0.10)
RP6 closed ($N = 8$)	1.60 (0.40)	2.01 (0.51)	2.11 (0.82)	2.61 (2.12)	1.82 (1.82)	1.00 (0.00)

There is no statistical difference between the two strategies for the elimination of the studied molecules.

Malignant hypertension and oral contraceptives: Report of four cases. *Y. Saint-Hillier, N. Baumont, H. Colomb, J. L. Dupond, G. Pageaut, C. Perol. Services de Néphrologie-Médecine V et Anatomie Pathologique, Besancon, France.* The appearance of a mild arterial hypertension in users of oral contraceptives is relatively frequent. This complication, however, is sometines more serious, presenting all the manifestations of malignant hypertension. In the past three years, we have had the opportunity to observe four cases of malignant hypertension in women aged 30 to 45 years taking the pill. In all four cases there existed: a diastolic arterial pressure that was greater than 130 mm Hg; a bilateral papilledema or retinal hemorrhages with exudates, and in 13 of the observed cases, renal failure with anuria. In two cases we noted the characteristics of a hemolytic-uremic syndrome associated with signs of intravascular coagulation. Renal biopsy showed, in all cases, signs of thrombotic microangiopathy or malignant nephroangiosclerosis. The evolution was fatal in several days in two of the cases observed; the other two patients were the only ones treated with the thrombolytic agent Urokinase". The recovery of renal function was relatively satisfactory since, after a delay of 36 months and 20 months, respectively, creatinine went from 95 to 25 mg/liter in the first case, and from 47 to 17 mg/liter in the second. We have found 43 previously reported cases (23 of which were mortal and 9 of which ended in chronic dialysis) where oral contraceptives were associated with the appearance of a malignant arterial hypertension, a hemolytic-uremic syndrome, Moschocowitz's disease, or "a late" postpartum nephropathy, all of which have practically identical anatomical manifestations.

Bartter's syndrome: Primary renal hyperprostaglandinism. *J. W. Smiley, E. T. Del Guercio, N. M. March, and A. Hornych. Mercy Catholic Medical Center, Philadelphia, U.S.A., and Hôpital Broussais, Paris, France.* Recent publications demonstrate increased plasma and urinary prostaglandins (PGs) in Bartter's syndrome (BS). Treatment with indomethacin is a rational therapy which decreases elevated PGs and also decreases the increased renin activity (PRA). We were interested in one patient with BS in regard to the following questions: *1)* Is the kidney the real source of elevated PGs? *2)* Is the renal hypersecretion of PGs a primary event and increased PRA a secondary one, or vice versa? In order to answer these questions, we have measured the PGs, A and B series, and PRA (radioimmunoassay method) in renal venous blood (LRV = left renal vein, RRV = right renal vein) and in vena caval blood below the kidneys (VCI) in control period and 30 and 60 min after the peroral application of 50 mg of indomethacin (I). The results are:

	PRA, *ng/ml/hr*			PGA_1, *pg/ml*			PGB_1, *pg/ml*		
	IVC	LRV	RRV	IVC	LRV	RRV	IVC	LRV	RRV
0	27.3	27.4	27.8	595	726	670	365	480	407
½ hr	22.4	28.6	26.4	389	507	432	264	244	207
1 hr	22.6	31.5	27.4	452	357	421	248	236	274

Our results demonstrate: *1)* PGA_1 concentration in renal venous blood is seven times normal; PGB_1 is two times normal and higher than in vena cava, confirming the renal origin of PGs. PRA is 17 times normal. *2)* The treatment with I decreases significantly both PGs but without significant change of PRA. *Conclusion*: Oral indomethacin inhibits rapidly the synthesis of PGs. If I has any effect on PRA in our patient with BS, it occurs later and may be an indirect effect secondary to a decrease in PGs or to volume expansion.

An unusual cause of acute renal failure: Primary tumor of the heart. *E. Stoupel, F. Deuvaert, P. De Wilde, J. L. Leclerc, R. J. Kahn, G. Primo, and C. Toussaint. Departments of Medicine and of Surgery, Hôpital Universitaire Brugmann, Brussels, Belgium.* An 18-year-old girl, without past illness, developed acute renal failure, preceded by retrosternal pain, dyspnea, faintness, vomiting, and pain in the right hypocondrium. On admission, the findings were: heart and lungs, normal; chest film, negative; painful hepatomegaly; white blood cells, 40,000/mm^3; serum transaminases and lactic deshydrogenase, over 1000 IU. During the following days, while hemodialysis had been initiated, cardiac tamponnade supervened, culminating in complete heart arrest necessitating external massage and surgical drainage of the pericardial cavity (1400 ml of blood). Owing to early renal failure, aneurysmal dissection of the aorta into the pericardial sac was suspected, but aortography excluded this possibility. On the 12th day of the illness, another episode of tamponnade necessitated a second surgical drainage, immediately followed by extracorporeal circulation for complete surgical exploration of the heart. This revealed a bleeding tumor of the right auricle extending within the pericardial cavity. The tumor, a benign hemangioma of 4 cm diameter, was removed, and the auricular wall was repaired with the use of a piece of pericardium. Kidney failure necessitated further hemodialyses until the 32nd day of illness, but on the 50th day, heart and kidney functions were normal.

Hemofiltration in uremia: Clinical approach. *J. Vantelon, F. Lauriat, B. Perrone, F. Jeannot. Centre Hospitalier de Pontoise, France.* According to Quellhorst, we have used the RP6 hemodialyzer as an ultrafilter. An ultrafiltration rate of 70 to 80 ml/min has been reached by a transmembrane pressure of 350 mm Hg with a 250 ml/min blood flow. It is possible to exchange 20 liters of ultrafiltrate for 18 to 20 liters of a modified Ringer's acetate solution within four to five hours. Five patients have been treated by hemofiltration for 3 to 12 months. Their condition can be compared to that of hemodialyzed patients. The technique is easy and well tolerated. This new approach in the treatment of uremia calls for wider clinical study.

Influence of single needle technique on the efficiency of dialysis: A control-study. *D. Zaid, C. Jacobs, J. Rottembourg, P. Degoulet. Service de Néphrologie, Groupe Hospitalier Pitié-Salpêtrière, Paris, France.* The influence of single needle technique (SNT) on the efficiency of dialysis was evaluated in eight patients. The duration of the study was 56 patient-months. Clinical and biological results obtained with SNT were compared to those found in the same patients while they were treated during a period of identical duration with arteriovenous (AV) shunts or double puncture of AV

fistulas. Each patient acted as his own control: mean duration of the dialysis sessions, the type of dialyzer used, the blood flow through the dialyzers, the dietary and drug prescriptions were kept identical throughout the two periods of the study. Biological variations attributed to the use of SNT affected predialysis plasma potassium (5.4 ± 0.4 mEq/liter vs. 4.9 ± 0.5 mEq/liter, $P < 0.01$), post-dialysis plasma urea (47 ± 0.9 mg/100 ml vs. 38 ± 0.8 mg/100 ml, $P < 0.05$), and plasma creatinine (4.6 ± 0.9 mg/100 ml vs. 3.8 ± 0.9 mg/100 ml, $P < 0.02$). No significant differences were found between the two periods with regard to weight loss during dialysis sessions, predialysis plasma levels of urea, creatinine, and phosphorus, postdialysis plasma levels of potassium and phosphorus. These results indicate that the clinical and biological control obtained in chronic dialysis patients treated with SNT is comparable to that achieved with classical techniques without increasing the duration of dialysis.